

Amendments to the Specification:

Please replace the paragraph that begins on page 6, line 6, with the following paragraph:

a valve body 20 defining a first (e.g., supply) port 22, (one or more) second (e.g., vent or drain) port(s) 24, and (one or more) third (e.g., cylinder or outlet) port(s) 26, the valve body forming a first magnetic member;

Please replace the paragraph that begins on page 6, line 10, with the following paragraph:

a movable valve member (e.g., spool) 28 positioned in the valve body 20 and movable between a first (e.g., vented or leftmost seated) position and a second (e.g., supply or rightmost seated as shown) position, the valve member forming a first magnetic member moveable relative to a second magnetic member formed by valve body 20 and end cap 25;

Please replace the paragraph that begins on page 15, line 3, with the following paragraph:

In Figure 3a, the right-most end of spool 28' is shown as being flat and resting flat against the adjacent stop. This illustration is schematic only, in that preferably the end surface of the spool, or alternatively the surface of the stop against which it abuts when in the right-most position, is patterned so that the area of contact of the right-most end of the spool against the adjacent stop is a relatively small fraction of the total area of the end of the spool, thereby minimizing the suction effects upon actuation. In this embodiment, spool 28' is a first magnetic member moveable with respect to a second magnetic member comprising valve body 27, end cap 29 and pole piece 44.

Please replace the paragraph that begins on page 15, line 12, with the following paragraph:

Details of the spring arrangement in the embodiment of Figure 3a may be seen in Figure 3b, showing a small region of Figure 3a on an expanded scale. As shown therein, spool 28' is illustrated in the unactuated position, the end of the spool 28' being spaced away from pole piece 44, space 46 being free space for movement of the spool 28' upon actuation of the electromagnetic coil 30. In this position, member 48 is pushing against the end of ~~spring~~ spool 28' by the force of spring 50 acting against flange 52 integral with member 48. In this position, flange 52 is still spaced away from the end of member 54, members 52 and 54 being slidable longitudinally to the left against the resistance of springs 50 and 56, respectively. Spring 56 is pressing against flange 58 on member ~~48~~ 54, which in turn is pressing against the end of pole piece 44 to keep the right end of member 54 extending slightly beyond the right-hand face of pole member 44, but spaced apart from the end of spool 28'. Thus only spring 50 is active to hold spool 28' in its right-most unactuated position.

Please replace the paragraph that begins on page 16, line 21, with the following paragraph:

Now referring to Figure 4, a still further alternate embodiment of the present invention may be seen. While the prior two embodiments had both springs at the same end of the spool,

the embodiment of Figure 4 has one spring at each end of the spool. This embodiment also uses two electromagnetic coils, one at each end of the spool, though as shall subsequently be seen, embodiments of this configuration having only a single electromagnetic coil may also be used. Figure 4 illustrates the stable intermediate position of spool 28" when neither electromagnetic coil 30 is electrically actuated. It also illustrates the spool 28" in the position it would reach when the left electromagnetic coil 30 is electrically actuated. In this position, spring 60, acting against flange 62 on member 64, pushes member 64 and spool 28" to their left-most position, with the left end of the spool resting against the face of the left pole piece 72 against the resistance of spring 66, acting against flange 68 on member 70. For this to happen, of course, spring 60 needs a higher spring force than spring 66, as spring 66 is compressed as the spool moves from a position spaced from its rightmost position to its leftmost position. In this embodiment, spool 28" is a first magnetic member moveable with respect to a second magnetic member comprising either body 31 and end cap 72, or body 31 and end cap 33, depending on which coil is energized. This is illustrated in Figures 5a and 5b. Also illustrated in Figure 5b is the fact that energy stored in spring 66 will be returned to the spool on actuation of the right coil 30, but at some point in the travel of the spool toward its right-most position upon actuation of the right electromagnetic coil 30, flange 68 on member 70 will engage the adjacent end of pole piece 72, and is thereafter not active in encouraging the spool to the right-most position. Thus the spool is subject to the force of spring 66 throughout much of its travel, such as by way of example, 75% of its travel to the right-most position, though thereafter imparts no force to the spool. Therefore the net spring force on the spool throughout much of its travel is the difference between the force of spring 60 and that of spring 66, though as the spool approaches the right-most actuated position, spring 66 is no longer active, so that the net spring force becomes the full spring force of spring 60 toward the left. This is illustrated in Figure 5c, which is merely a graph of the difference in values graphed in Figures 5a and 5b. The overall result is similar to that illustrated in Figure 2 for the embodiment of Figure 1, though is achieved by using two springs opposing each other throughout most of the travel of the spool as opposed to two springs aiding each other but only adjacent the actuated position. Alternatively, in the embodiment of Figure 4, the left electromagnetic coil could be left out, resulting in a single actuator, spring return spool valve having excitation requirements and operating characteristics that could be substantially identical to that of the embodiment of Figure 2. The additional electromagnetic coil, however, has the beneficial effect of increasing the speed of operation of the spool-type fluid control valve, for example, towards the first or vent position. In the case of a fuel injector, for example, this can help control relatively small quantities of fuel injection. As a further alternative, one of the springs, specifically the return spring could be eliminated, with the return being achieved by the second electromagnetic coil.